

Why are there Contaminants in my Drinking Water?

Sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants in drinking water may include:



Microbial contaminants, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals can be naturally-occurring or result from urban storm-water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

Pesticides and herbicides, may come from a variety of sources, such as agriculture, urban storm-water runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

Voluntary Monitoring

EPA has established secondary maximum contaminant levels (SMCL). SMCLs are non-enforceable standards that serve as guidelines to assist public water systems in managing their drinking water. The presence of these contaminants typically results from the erosion of natural deposits. Aluminum and manganese containing materials are used as treatment aids in the water treatment process.

In cooperation with Los Alamos National Laboratory (LANL) and the New Mexico Environment Department, the City currently monitors Buckman Wells 1, 6 and 8 for LANL derived contamination. Samples are analyzed for radionuclides, general inorganic chemicals, metals, high explosives and organics. The results indicate detectable levels of radionuclides associated with natural sources. No Laboratory-derived radionuclides were detected in 2011. Repeat sampling since 2001 indicates Laboratory-derived radionuclides are not present in the Buckman Wells 1, 2, 6 and 8. These wells are part of the 13 wells that make-up the Buckman Wellfield. When required, water from these wells is delivered to the 10 million gallon Buckman Tank prior to distribution into the system.

Radioactive contaminants, which can be naturally occurring, man-made from nuclear facilities, or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Arsenic

The drinking water standard for arsenic is 10 µg/l. The City's drinking water met this standard throughout 2011. Arsenic occurs naturally in the earth's crust. When these arsenic-containing rocks, minerals, and soil erode, they release arsenic into ground water. While our drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's new standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.



Accomplishment and achievements in 2011:

- Completed hydroelectric facility construction within the City.
- Executed Santa Fe Municipal Watershed Management Project.
- Maximized surface water use at treatment plants.
- Prepared and distributed Safe Drinking Water Act Consumer Confidence Report for 2010.
- Successful intergration of BDD into the municipal distribution system.
- Undertook feasibility study for a 1MW solar power station at BDD.
- Installation of 2 water harvesting demonstration tanks.
- Replaced end of life water mains.
- Completed leak testing and identification within the distribution system.
- Continued maintenance and improvement to assets.
- Upgrade to new procedures and modern technology resulting in increased efficiency and conservation of water at Canyon Road WTP.
- Completed quarterly sampling of the Buckman Wellfield in conjunction with Los Alamos National Laboratory and collaboratively sampled shallow groundwater wells in proximity to the Rio Grande.

Future Goals and Projects:

- Improve and promote customer service.
- Redesign the billing and information helpline.
- Initiate a regional groundwater and conjunctive use management plan.
- Buckman Wellfield Arsenic Evaluation Project.
- Complete 40 year water development plan.
- Promote water conservation and water quality protection programs in schools.
- Improve user friendliness and content of the Water Division website.
- Continued thinning of the Santa Fe Watershed.
- Promote the City of Santa Fe as a leader in water conservation.
- Initiate a cross connection control/backflow prevention program to protect water quality within the City's distribution system.
- Work with the New Mexico Environment Department to classify/reclassify the upper, urban and lower segments of the Santa Fe River.

Cryptosporidium

Cryptosporidium is a protozoan parasite that is common in surface waters. The oocyst is the transmission stage of the organism. Cryptosporidium is introduced into our source waters via wild animal populations. Although the organism is readily removed by the conventional treatment process utilized at the Canyon Road Water Treatment facility, the oocyst is resistant to chemical disinfectants like chlorine and the primary reason to determine if additional treatment is required. Ingestion of Cryptosporidium may cause cryptosporidiosis, an abdominal infection.



In April 2007 the City began a two-year study to determine the average Cryptosporidium concentration in source water entering the Canyon Road Water Treatment facility. The sampling portion of the study was completed in March of 2009. The study is part of the requirements contained in the 2006 USEPA Long-Term Enhanced Surface Water Treatment Rule. Cryptosporidium was detected in a single untreated sample in each of the following months: December of 2007, September 2008 and October 2008. The highest 12-month consecutive mean for this study was 0.018 oocysts/L. Since the concentration is <0.075 oocysts/L, no additional treatment at the Canyon Road Water Treatment Facility will be required.

Any new water system treating surface water such as BDD is required to monitor cryptosporidium for 24 consecutive months. At the BDD the untreated raw Rio Grande water cryptosporidium test results range from 0 to 0.1 oocysts/L.

Nitrates

City of Santa Fe drinking water meets the federal drinking water standard of 10 ppm for nitrates. Nitrates have been detected in some of the City Wells above 5 ppm. Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.



Lead and Copper Sampling

Tests for lead and copper are taken from customer taps located throughout the City once every three years. The previous round of lead and copper testing took place in June of 2009. In 2012, the City shall undertake

	Copper (ppm)	Lead (ppb)
MCLG	1.3	0
AL**	1.3	15
City Water Levels (90th percentile)*	0.420	4.8
# of Sample <AL	30	30
Sample Date	06-Jun-09	06-Jun-09
Exceeds AL	No	No
Typical Source	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.	Corrosion of household plumbing; Erosion of natural deposits

*Results of monitoring are used to determine the concentration at the 90th percentile (e.g., if 100 samples analyzed, the concentration at the 90th highest sample). Based on the number of samples analyzed in 2009 the 90th percentile is the 27th sample.
** AL = Action Level

its next compliance period of sampling as required by EPA legislation. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Santa Fe is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800) 426-4791 or at <http://www.epa.gov/safewater/lead>.

Contacts for Additional Information

If you have any questions, comments, or suggestions regarding this report please contact Brian Snyder at 955-4201 or write to the address on page 1.

- City of Santa Fe Billing Information and Customer Service 955-4333
- City Water Quality Issues 955-4232 Alex Puglisi
- New Mexico Environment Department Drinking Water Program (877) 654-8720
- Environmental Protection Agency Safe Drinking Water Hot Line (800) 426-4791
- New Mexico Environment Department <http://www.nmenv.state.nm.us>
- Environmental Protection Agency www.epa.gov/safewater
- U.S. Geological Survey <http://nm.water.usgs.gov>
- Center for Disease Control <http://www.cdc.gov>
- City of Santa Fe's Website www.santafenm.gov
- Buckman Direct Diversion www.bddproject.org

Important Drinking Water Definitions

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal

(MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

TT: Treatment Technique, a required process intended to reduce the level of a contaminant in drinking water.

AL: Action Level: The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements, which a water system must follow.

ppm: parts per million or milligrams per liter (mg/l)

ppb: parts per billion or micrograms per liter (µg/l)



2011 City of Santa Fe Water Quality Table

The table on the following page lists contaminants which:

1. Have associated primary Maximum Contaminant Levels (MCLs) that are regulated and;
2. Were detected in testing conducted by the City and New Mexico Environment Department. Contaminants were detected at or above detection limits established by the USEPA in calendar year 2011 or the most recent test if a sample was not analyzed up to 2011.

The compounds detected represent a small fraction of the substances that SDCW tested for. Testing is required for over 80 contaminants. The EPA requires monitoring for certain contaminants less than once per year because the concentrations are not expected to vary significantly from year to year. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that water poses a health risk.

More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (800-426-4791), or visiting www.epa.gov/safewater.

City of Santa Fe 2011 Water Quality Table



City of Santa Fe Water Division
P.O. Box 909, Santa Fe, NM 87504

Customer Service (505) 955-4333
Administration (505) 955-4202

2011 Water Quality Report

Contaminant	Units	MCL	MCLG	City Well Field ^e	Compliance Period ^c 2011-2013		Sample Date	Buckman Tank ^f	Compliance Period ^c 2011-2013		Sample Date	Canyon Road WTP	Compliance Period ^c 2011-2013		Sample Date	Buckman WTP	Compliance Period ^c 2011-2013		Sample Date	Violation	Typical Source
					Low	High			Low	High			Low	High			Low	High			
Inorganic Contaminants																					
Arsenic	ppb	10	0	4.6	1.2	4.6	18-May-11	1.6			17-June-11	ND			17-June-11	0.76	ND	0.76	2011	No	Erosion of natural deposits; Runoff from orchards. Runoff from glass and electronics production wastes.
Antimony	ppb	6	6	ND			24-Aug-11	ND			17-June-11	ND			17-June-11	0.38	ND	0.38	2011	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder.
Barium	ppm	2	2	0.8	0.11	0.8	24-Aug-11	0.073			17-June-11	0.0086			17-June-11	0.047	0.041	0.047	2011	No	Discharge from drilling wastes. Discharge from metal refineries. Erosion of natural deposits.
Flouride	ppm	4	4	0.18	0.13	0.18	18-May-11	0.25			17-June-11	0.1			17-June-11	0.35	0.3	0.35	2011	No	Erosion of natural deposits. Water additive which promotes strong teeth. Discharge from fertilizer and aluminum factories.
Selenium	ppb	50	50	1.7	1.1	1.7	16-May-11	ND			17-June-11	ND			17-June-11	1.4	1.2	1.4	2011	No	Discharge from steel/metals factories; Discharge from plastic and fertilizer factories
Nitrate [as N]	ppm	10	10	7.5	2.3	7.5	24-Aug-11	ND			17-June-11	ND			17-June-11	ND			2011	No	Runoff from fertilizer use. Leaching from septic tanks, sewage. Erosion from natural deposits.
Sodium	ppm	NA	NA	9.9	5.5	9.9	16-May-11	18			17-June-11	12			17-June-11	28	20	28	2011	NA	Erosion of natural deposits. Runoff from de-icing agent used on roads.
Radioactive Contaminants																					
Gross Alpha Emitters	pCi/L	15	0	0.98	0.3	0.98	2009-2010	1.3			16-June-11	0.6			16-June-11	3	ND	3	2011	No	Erosion of natural deposits.
Gross Beta/Photon Emitters	pCi/L	50 ^a	NA	3	0.9	3	2009-2010	2.4			16-June-11	0.7			16-June-11	6.8	1.9	6.8	2011	No	Decay of natural and man-made deposits.
Radium 226/228	pCi/L	5	0	1.7	0.57	1.7	2009-2010	0.18			16-June-11	0			16-June-11	4.18	0.42	4.18	2011	No	Erosion of natural deposits.
Uranium	ppb	30	0	1.3	1	1.3	2009-2010	ND			16-June-11	ND			16-June-11	1.000	ND	1	2011	No	Erosion of natural deposits.
Synthetic Organic Contaminants																					
Ethylene Dibromide	ppt	50 ^g	0	ND			24-Aug-11	ND			17-June-11	61	ND	61	17-June-11	ND			2011	No	Discharge from petroleum factories.
Disinfectants & Disinfection By-Products																					
Bromate	ppb	10	0	ND				ND				ND				1	1	1	2011	No	By-product of drinking water chlorination.
Haloacetic Acids (HAAs)	ppb	60	NA	7.45 ^{AV}	0	20.25	Sampled Quarterly in 2011	9.39 ^{AV}	0.13	30.5	Sampled Quarterly in 2011	12.19 ^{AV}	0	21.93	Sampled Quarterly in 2011	6.4	ND	6.4	2011	No	By-product of drinking water chlorination.
TTHMs [Total Trihalomethane]	ppb	80	NA	13.43 ^{AV}	0	26.7	Sampled Quarterly in 2011	18.21 ^{AV}	0.2	51.3	Sampled Quarterly in 2011	38.57 ^{AV}	26.8	53.2	Sampled Quarterly in 2011	28	12.1	28	2011	No	By-product of drinking water chlorination.
Surface Water Contaminants																					
Turbidity ^d (highest single measurement)	NTU	TT=0.3	0	NA				NA				0.35	NA	NA	Continuous	0.54	NA	NA	Continuous	No	Soil Runoff
Turbidity ^d (lowest monthly % meeting limits)	NTU	TT=%<0.3 NTU	0	NA				NA				99.4%	99.4%	100%	Continuous	95.9%	95.9%	100%	Continuous	No	Soil Runoff
Total Organic Carbon (TOC)	ppm	TT=(35%-45%) Removal	NA	NA				NA				(39%-70%) Removal ^b	37	52	Monthly in 2011	NA				No	Naturally present in the environment

Notes:
a. EPA considers 50 pCi/L to be the level of concern for beta particles.
b. The City complies with alternative compliance criteria to meet TOC removal requirements.
c. The range represents the high and low values. Range values are not given if only one sample was taken during the range period.
d. Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.
e. City well field: Alto, Aupa Fria, Ferguson, Osage, Santa Fe, St. Michael & Torreon.
f. Buckman wells 1-13 and Northwest well.
g. Rolling annual average

Key to Units, Terms and Abbreviations
NA: Not Applicable
ND: Not Detected
NS: Not Sampled
NTU: Nephelometric Turbidity Units
MNR: Monitoring not required, but recommend
ppm: parts per million, or milligrams per liter (mg/l)

ppb: parts per billion, or micrograms per liter (ug/l)
pCi/l: picocuries per liter (a measure of radioactivity)
ug/l: Number of micrograms of substance per liter of water
mg/l: Number of milligrams of substance per liter of water
TT: A Treatment Technique standard was set instead of an Maximum Contaminant Level
Range: The range represents the highest and lowest values. Range values are not provided if only one sample was taken during the range period.

The City of Santa Fe's Water Division (the City) is pleased to provide the 2011 Water Quality Report. A safe and dependable water supply is vital to our community and is the primary mission of the city. The report is provided annually and contains information on calendar year 2011 water quality. In 2011, the City's drinking water met all U.S. Environmental Protection Agency (EPA) and state drinking water quality limits. The report contains additional details about where your water comes from, what it contains, and how it compares to standards set by federal and state regulatory agencies.

Sources of Supply

The city was served by four distinct sources of supply in 2011. The 17,000 acre Santa Fe Watershed provides surface runoff to the Santa Fe River where it is stored in the McClure and Nichols Reservoir prior to treatment. Surface water from the Santa Fe River and Rio Grande is treated through conventional and advanced treatment processes at the Canyon Road Water Treatment Plant and the Buckman Regional Water Treatment Plant (BRWTP), respectively.

The City Well Field is mostly located in close proximity to the Santa Fe River and consists of 8 active wells located within the City limits of Santa Fe. The Buckman Well Field consists of 13 wells located near the Rio Grande, approximately 15 miles northwest of Santa Fe. All four sources are treated with chlorine which is used for disinfection and pathogenic microorganism removal. Fluoride is added to the water supply to benefit the community as recommended by public health professionals.

In 2011, the Buckman Direct Diversion (BDD) Project surface water supply was successfully integrated into the municipal distribution system and operated in conjunction with the City's pre-existing sources of supply. The surface water treated at the BRWTP is taken directly from the Rio Grande. BDD not only improves sustainability for the area but also increases the City's resilience under drought conditions, replacing current groundwater pumping that cannot be sustained, and making the City's wells available as drought and emergency reserves rather than sources used to meet the daily water demands.

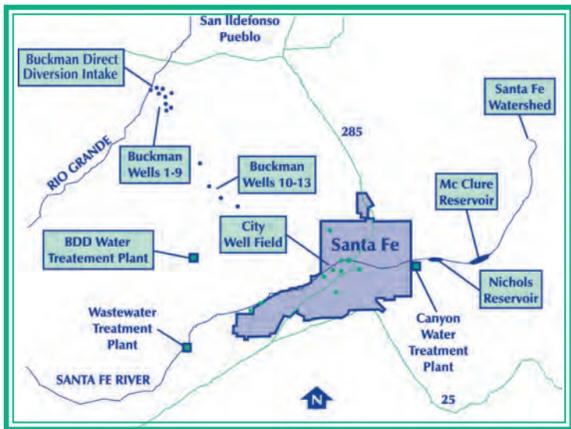
Do I need to take special precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

En Español

Este reporte contiene informacion importante sobre la calidad del agua en Santa Fe Si tiene alguna pregunta o duda sobre este reporte puede hablarle a Victor Archuleta al telefono 505-955-4370.

Map of Water Sources



Source Water Assessment and Availability

The New Mexico Environment Department (NMED) completed a Source Water Assessment for the City of Santa Fe. This assessment includes a determination of source water protection areas and an inventory of pollution sources within the areas of concern. NMED concluded: "The Susceptibility Analysis of the City of Santa Fe water utility reveals that the utility is well maintained and operated, and the sources of drinking water are generally protected from potential sources of contamination based on an evaluation of the available information. The susceptibility rank of the entire water system is **moderately low**." A copy of the Assessment is available by contacting NMED at 505-476-8636.

City ordinances adopted in 2005 built upon the recommendations in the Source Water Assessment. The "Safe Drinking Water and Source Water Protection" and the "Stormwater Illicit Discharge Control" ordinances provide additional controls and protections for the City's ground and surface water supplies. In addition, the City established a Stormwater Program with the goal of reducing pollutant discharged to the Santa Fe River. A hotline has been set up (955-5644) to report illegal dumping in storm drains, streets and arroyos.